



## The Timing of Autumn Rail Migration in Missouri

### Science Notes



# The Timing of Autumn Rail Migration in Missouri

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## Background Information:

Monitoring and conserving waterbirds in Missouri, including Sora (*Porzana carolina*), Virginia Rail (*Rallus limicola*), and Yellow Rail (*Coturnicops noveboracensis*), are constrained by the lack of information on migration phenology. Understanding the timing of a species' migration is as important as knowing the species' habitat needs and stopover ecology. Awareness regarding the time of year that habitat is needed is vital to inform habitat management, especially in highly ephemeral habitats such as palustrine emergent wetlands. Public wetlands across the central United States, including Missouri, are typically managed as migratory bird stopover habitat, with a focus on waterfowl; other wetland-dependent bird species, including rails, also use these habitats although the timing of their need is less well known.

## Methods:

We performed nocturnal distance sampling based ATV surveys across 11 state and federal managed wetlands in Missouri, USA from 2012-2016. These surveys enabled us to estimate Sora density, but, due to low numbers of Virginia Rail and Yellow Rail detections, density estimates were not possible for these species. Instead, we used relative counts as an alternative means to estimate density.

## Result:

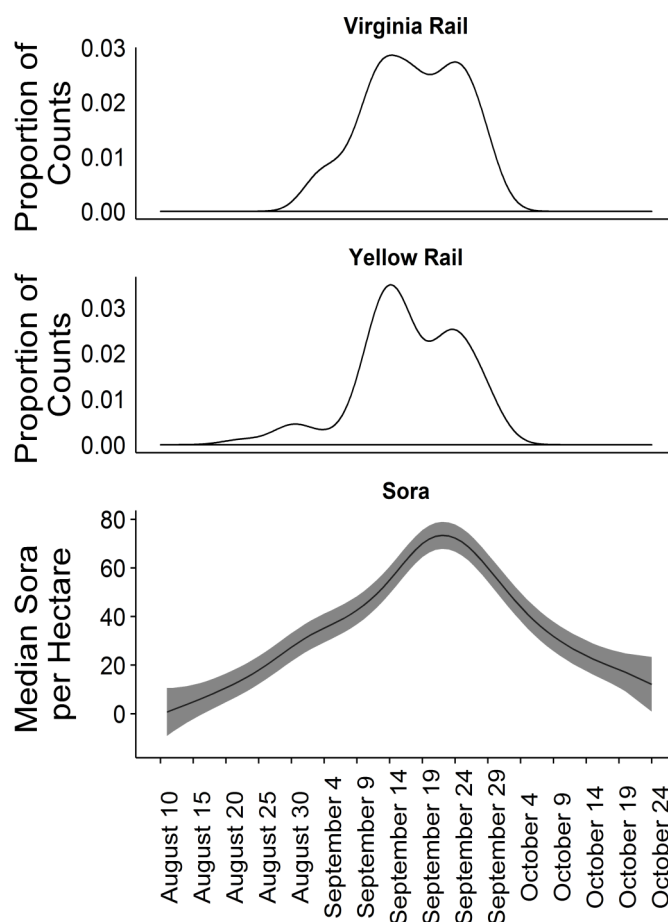
We detected 8,070 rails, including 7,905 Sora, 114 Virginia Rails and 77 Yellow Rails. Sora migration in Missouri began in the first week of August, peaked around 25 September, and continued through the last week of October (Figure 1). Yellow and Virginia Rail migration started in early September, and peaked in mid-September (Figure 1). All three species migrate earlier in the autumn than most migratory waterfowl. We found the start and end of Sora migration did not vary annually in four of five years.

## Management Implications:

- Sora are migrating earlier in the autumn than reported in previous work.
- Yellow and Virginia Rail migration starts later in relation to sora migration, and there are fewer individuals observed.

- We do not have population estimates for the three study species so it is difficult to speculate if the difference in number of detections is related to population size, survey methodology, habitat selection decisions, or differences in migration ecology. This question is worthy of future evaluation.

*Figure 1 – Comparision of autumn migratory timing of Virginia Rail (*Rallus limicola*), Yellow Rail (*Coturnicops noveboracensis*) and Sora (*Porzana carolina*) from 2012 -2016 in Missouri USA. Virginia Rail and Yellow Rail graphs represent the proportion of counts of individuals. The Sora graph represents a smoothed spline of the formal density estimates.*



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